

CLAIMS

Please amend the claims as shown in the following listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A stent graft device suitable for placement at a vascular treatment site, the stent graft device comprising:
 - a proximal, inflow end of the stent graft device as a whole;
 - a distal, outflow end of the stent graft device as a whole;
 - a plurality of stents connected together to form a stent frame with lumens of the respective stents coaligned to form a common continuous lumen extending from at least one stent having a proximal stent frame end to and a distal stent frame end and having a lumen extending therethrough between the proximal and distal stent ends, the stent graft device placeable at the vascular treatment site such that the proximal stent frame end of the at least one stent is located upstream of the distal stent frame end of the at least one stent, the distal stent frame end of the at least one stent providing said distal, outflow end of the stent graft device as a whole through which blood flowing through the stent graft device can exit the stent graft device, wherein each of said plurality of stents has eyelets at proximal and distal ends thereof with adjacent ones of said plurality of stents connected together by a monofilament that extends through adjacent eyelets of adjacent stents; and
 - a covering of collagen having an isolated extracellular matrix layer that becomes remodeled by host tissue, secured to the at least one stent frame and extending therealong between the proximal stent frame end and the distal stent frame end ~~stent ends~~, wherein the covering is a sleeve that initially has a length about equal to twice the length of the at least one

stent frame, wherein a first portion of the sleeve extends along and complements an inside surface of the ~~at least one~~ stent frame, and a second portion of the sleeve extends along and complements an outside surface of the ~~at least one~~ stent frame, and wherein the first portion and the second portion of the sleeve are sutured to the distal stent frame end and the proximal stent frame end ~~of the at least one stent~~, and further wherein the first portion of the sleeve is secured to the inside surface of the ~~at least one~~ stent frame by sutures to struts of the plurality of stents at least one stent between the distal stent frame end and the proximal stent frame end and also by sutures through eyelets of each of said plurality of stents at the proximal and distal ends thereof, and the second portion of the sleeve is secured to the outside surface of the ~~at least one~~ stent frame by sutures to struts of the plurality of stents at least one stent between the distal stent frame end and the proximal stent frame end and also by sutures through eyelets of each of said plurality of stents at the proximal and distal ends thereof.

2. (Cancelled)

3. (Currently Amended) A stent graft device suitable for placement at a vascular treatment site, the stent graft device comprising:

a proximal, inflow end of the stent graft device as a whole;

a distal, outflow end of the stent graft device as a whole;

a stent frame that includes a plurality of stents connected together with lumens of the respective stents coaligned to form a common continuous lumen extending from at least one stent having a proximal stent frame end to and a distal stent frame end and having a lumen extending therethrough between the proximal and distal stent ends, each of said stents having a

proximal end and a distal end and including a plurality of struts disposed circumferentially about the stent in a zig-zag pattern, wherein each of the struts in the zig-zag pattern has a proximal end that converges with the proximal end of an adjacent strut at an eyelet occurring at the proximal end of the stent such that the stent provides a circumferential array of proximal eyelets about its proximal end, and wherein each of the struts in the zig-zag pattern further has a distal end that converges with the distal end of an adjacent strut at an eyelet occurring at the distal end of the stent such that the stent provides a circumferential array of distal eyelets about its distal end,

the plurality of stents including a first stent and an adjacent, second stent connected together by a monofilament that extends through the proximal eyelets of the first stent and the distal eyelets of the second stent, with the proximal eyelets of the first stent and the distal eyelets of the second stent being offset from one another along the monofilament; and

a covering of collagen having an isolated extracellular matrix layer that becomes remodeled by host tissue, secured to the plurality of stents ~~at least one stent~~ and extending therealong between the proximal and distal stent frame ends, wherein the covering is a sleeve that initially has a length about equal to twice the length of the ~~at least one stent frame~~, a first portion of the sleeve extends along and complements an inside surface of the plurality of stents ~~at least one stent~~, and a second portion of the sleeve extends along and complements an outside surface of the plurality of stents ~~at least one stent~~, wherein the first portion and the second portion of the sleeve are sutured to the distal stent frame end and the proximal stent frame end of the ~~at least one stent frame~~, wherein the first portion of the sleeve is secured to the inside surface of the plurality of stents ~~at least one stent~~ by sutures to struts of the plurality of stents ~~at least one stent~~ ~~stent~~ between the distal stent frame end and proximal stent frame end and also by sutures through proximal eyelets and distal eyelets of each of said plurality of stents, wherein the second portion

of the sleeve is secured to the outside surface of the plurality of stents ~~at least one stent~~ by sutures to struts of the plurality of stents ~~at least one stent~~ between the distal stent frame end and proximal stent frame end and also by sutures through proximal eyelets and distal eyelets of each of said plurality of stents, and wherein the stent graft further comprises a plurality of stents connected together to form a stent frame with lumens of the respective stents coaligned to form a common continuous lumen extending from a distal stent frame end to a proximal stent frame end, and the covering extending therealong between the proximal and distal stent frame ends, the stent graft device placeable at the vascular treatment site such that the proximal stent frame end is located upstream of the distal stent frame end, the distal stent frame end providing said distal, outflow end of the stent graft device as a whole through which blood flowing through the stent graft device can exit the stent graft device.

4. (Currently Amended) The stent graft device of claim 3, wherein the covering is secured to the plurality of stents at locations along the stent frame using a filament of biocompatible material, the locations being adapted to secure the filament in position against movement axially with respect to the stent frame during deployment at a treatment site of a patient ~~stent frame has eyelets at the proximal and distal ends.~~

5. (Currently Amended) The stent graft device of claim 4, wherein the covering is a sleeve of material ~~sutured to the stent frame using a filament of biocompatible material that extends through the eyelets.~~

6. (Currently Amended) The stent graft device of claim 3, wherein the sleeve is defined by connecting together along a seam, opposite edges of the isolated extracellular matrix layer ~~each of said plurality of stents has eyelets at proximal and distal ends thereof, and the covering is sutured to the stent frame using a filament of biocompatible material that extends through the eyelets.~~

7. (Currently Amended) The stent graft device of claim 1, wherein the covering is secured to the plurality of stents ~~at least one stent~~ at locations along the stent frame using a filament of biocompatible material, the locations being adapted to secure the filament in position against movement axially with respect to the stent frame during deployment at a treatment site of a patient.

8. (Previously Presented) The stent graft device of claim 1, wherein the covering is a sleeve of small intestine submucosa material.

9. (Previously Presented) The stent graft device of claim 8, wherein the sleeve is defined by connecting together along a seam, opposite edges of at least one flat tissue of the small intestine submucosa material.

Claims 10-11 (Cancelled)

12. (Currently Amended) A stent graft device comprising:

a stent frame defining only a single lumen extending from a first end of said stent graft device to a second end of said stent graft device;

said stent frame having a proximal stent frame end and a distal stent frame end, said stent frame provided by ~~a single stent or~~ by a plurality of stents connected together with lumens of the respective stents coaligned to form a common continuous lumen, each of said stents having a proximal end and a distal end and including a plurality of struts disposed circumferentially about the stent in a zig-zag pattern, wherein each of the struts in the zig-zag pattern has a proximal end that converges with the proximal end of an adjacent strut at an eyelet occurring at the proximal end of the stent such that the stent provides a circumferential array of proximal eyelets about its proximal end, and wherein each of the struts in the zig-zag pattern further has a distal end that converges with the distal end of an adjacent strut at an eyelet occurring at the distal end of the stent such that the stent provides a circumferential array of distal eyelets about its distal end,
the plurality of stents including a first stent and an adjacent, second stent connected together by a monofilament that extends through the proximal eyelets of the first stent and the distal eyelets of the second stent, with the proximal eyelets of the first stent and the distal eyelets of the second stent being offset from one another along the monofilament;

the proximal stent frame end providing a proximal, inflow end of the stent graft device as a whole;

the distal stent frame end providing a distal, outflow end of the stent graft device as a whole;

a covering of collagen secured to the stent frame, said covering of collagen having an isolated extracellular matrix layer that becomes remodeled by host tissue; and

wherein the covering is a sleeve having a single lumen therethrough, the sleeve has a length about equal to twice the length of the stent frame, a first portion of the sleeve extends along and complements an inside surface of the stent frame, and a second portion of the sleeve extends along and complements an outside surface of the stent frame, wherein the first portion and the second portion of the sleeve are sutured to the distal stent frame end of the stent frame that provides the distal, outflow end of the stent graft device as a whole, wherein the first portion and the second portion of the sleeve are sutured to the proximal stent frame end of the stent frame that provides the proximal, inflow end of the stent graft device as a whole, wherein the first portion of the sleeve is secured to the inside surface of the stent frame by sutures to struts of the stent frame between the distal stent frame end and proximal stent frame end and also by sutures through proximal eyelets and distal eyelets of each of said plurality of stents, and wherein the second portion of the sleeve is secured to the outside surface of the stent frame by sutures to struts of the stent frame between the distal stent frame end and proximal stent frame end and also by sutures through proximal eyelets and distal eyelets of each of said plurality of stents.

13. (Previously Presented) The stent graft device of claim 12, wherein the stent frame has eyelets at the proximal and distal ends.

14. (Currently Amended) The stent graft of claim 13, wherein the covering is sutured to the stent frame using a filament of biocompatible material that extends through the eyelets at the proximal and distal ends of the stent frame.

15. (Currently Amended) The stent graft device of claim 12, wherein the stent graft device incorporates an absorbable suture material ~~frame is provided by a plurality of stents connected together, and wherein each of said plurality of stents has eyelets at proximal and distal ends thereof and the covering is sutured to the stent frame using a filament of biocompatible material that extends through the eyelets.~~

16. (Previously Presented) The stent graft device of claim 12, wherein the covering is secured to the stent frame at locations along the stent frame using a filament of biocompatible material, the locations being adapted to secure the filament in position against movement axially with respect to the stent frame during deployment at a treatment site of a patient.

17. (Previously Presented) The stent graft device of claim 12, wherein the covering is a sleeve of small intestine submucosa material.

18. (Previously Presented) The stent graft device of claim 17, wherein the sleeve is defined by connecting together along a seam, opposite edges of at least one flat tissue of the small intestine submucosa material.

19. (Currently Amended) A stent graft delivery apparatus, comprising:
a transluminally advancable delivery device having a lumen communicating with a distal, open end; and
an expandable stent graft device having a first condition suitable for positioning the stent graft device in the delivery sheath lumen for delivery to a vascular treatment site and a second,

expanded condition adapted for deployment at the treatment site, the stent graft device comprising:

a stent frame that includes a plurality of stents connected together with lumens of the respective stents coaligned to form a common continuous lumen extending from at least one stent having a proximal stent frame end and a distal stent frame end and having a lumen extending therethrough between the proximal and distal stent ends, wherein each of said plurality of stents has eyelets at proximal and distal ends thereof with adjacent ones of said plurality of stents connected together by a monofilament that extends through adjacent eyelets of adjacent stents; and

a covering of collagen having an isolated extracellular matrix layer that becomes remodeled by host tissue, secured to the plurality of stents at least one stent and extending therealong between the proximal stent frame end and the distal stent frame end stent ends, wherein the covering is a sleeve that initially has a length about equal to twice the length of the plurality of stents at least one stent, a first portion of the sleeve extends along and complements an inside surface of the plurality of stents at least one stent, and a second portion of the sleeve extends along and complements an outside surface of the plurality of stents at least one stent, wherein the first portion and the second portion of the sleeve are secured to at least the distal stent frame end and the proximal stent frame end of the plurality of stents at least one stent, wherein the first portion of the sleeve is secured to the inside surface of the plurality of stents at least one stent by sutures to struts of the plurality of stents at least one stent between the distal stent frame end and the proximal stent frame end and also by sutures through eyelets of each of said plurality of stents at the proximal and distal ends thereof, wherein the second portion of the sleeve is

secured to the outside surface of the plurality of stents ~~at least one stent~~ by sutures to struts of the plurality of stents ~~at least one stent~~ between the distal stent frame end and proximal stent frame end and also by sutures through eyelets of each of said plurality of stents at the proximal and distal ends thereof,

wherein the stent graft device is positionable in the delivery device lumen such that upon deployment from the delivery device lumen at the vascular treatment site the proximal stent frame end of the plurality of stents ~~at least one stent~~ is located upstream of the distal stent frame end of the plurality of stents ~~at least one stent~~.